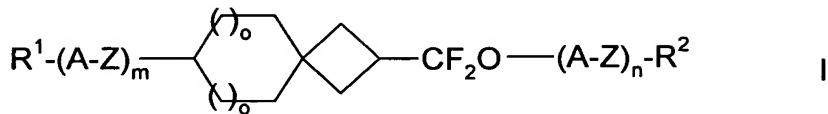


Patent Claims

1. Cyclobutane derivatives of the formula I

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R^1, R^2 are identical or different and each, independently of one another, denote H, halogen (F, Cl, Br or I) or a linear or branched, optionally chiral alkyl or alkoxy radical having 1 to 15 C atoms which is unsubstituted or mono- or polysubstituted by halogen and in which one or more CH_2 groups may each be replaced, independently of one another, by -O-, -S-, -CO-, -CO-O-, -O-CO-, -O-CO-O-, -CH=CH-, -CH=CF-, -CF=CF-, -C≡C- or  in such a way that heteroatoms are not linked directly to one another, -CN, -SCN, -NCS, -SF₅, -SCF₃, -CF₃, -CF=CF₂, -CF₂CF₂CF₃, -OCF₃, -OCHF₂, -CF₂CH₂CF₃ or -OCH₂CF₂CHFCF₃,

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A is identical or different and in each case, independently of one another, denotes

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- a) trans-1,4-cyclohexylene, in which, in addition, one or more non-adjacent CH_2 groups may be replaced by -O- and/or -S- and in which, in addition, one or more H atoms may be replaced by F,
- b) 1,4-phenylene, in which one or two CH groups may be replaced by N and in which, in addition, one or more H atoms may be replaced by halogen

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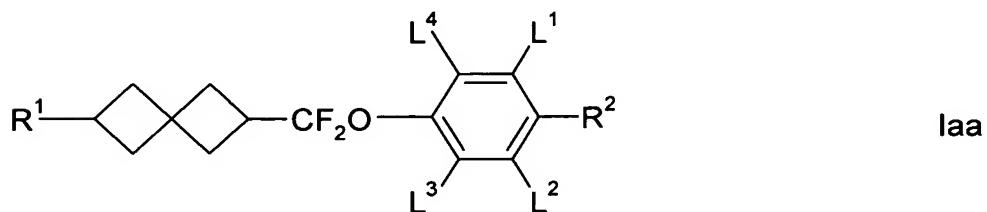
(F, Cl, Br or I), -CN, -CH₃, -CHF₂, -CH₂F, -OCH₃, -OCHF₂ or -OCF₃,

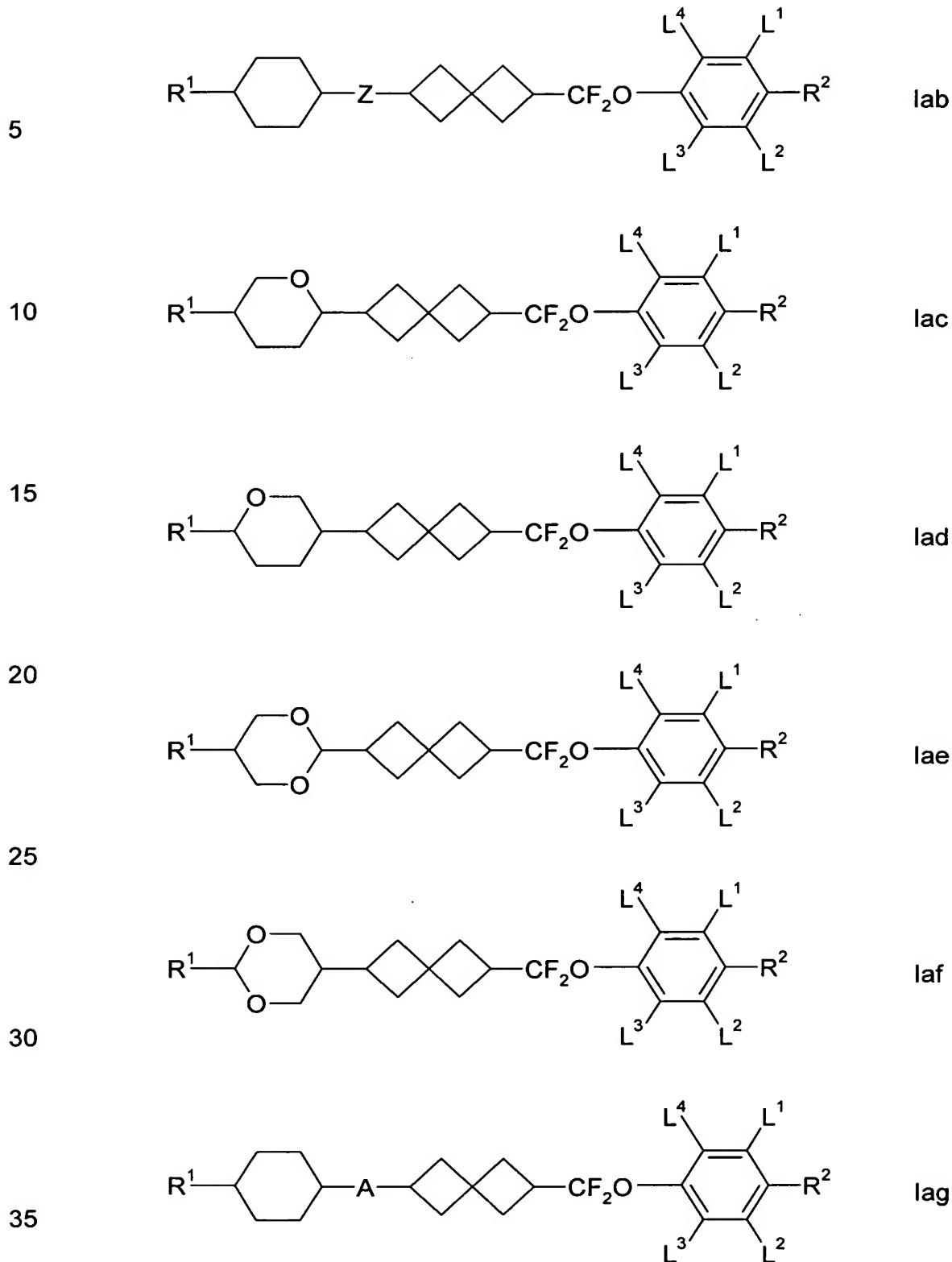
Z is identical or different and in each case, independently of one another, denotes $-O-$, $-CH_2O-$, $-OCH_2-$, $-CO-O-$, $-O-CO-$, $-CF_2O-$, $-OCF_2-$, $-CF_2CF_2-$, $-CH_2CF_2-$, $-CF_2CH_2-$, $-CH_2CH_2-$, $-CH=CH-$, $-CH=CF-$, $-CF=CH-$, $-CF=CF-$, $-CF=CF-COO-$, $-O-CO-CF=CF-$, $-C\equiv C-$ or a single bond.

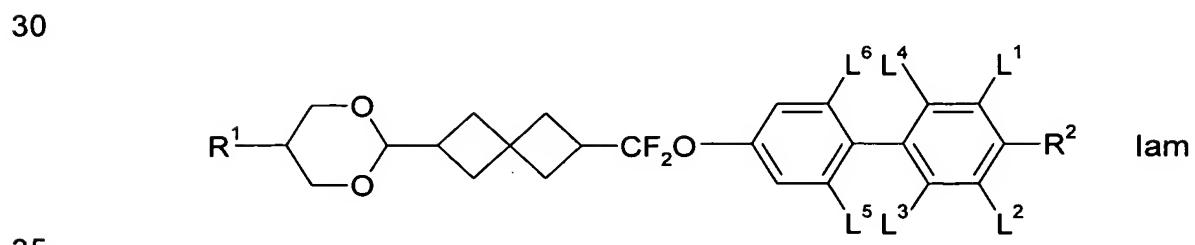
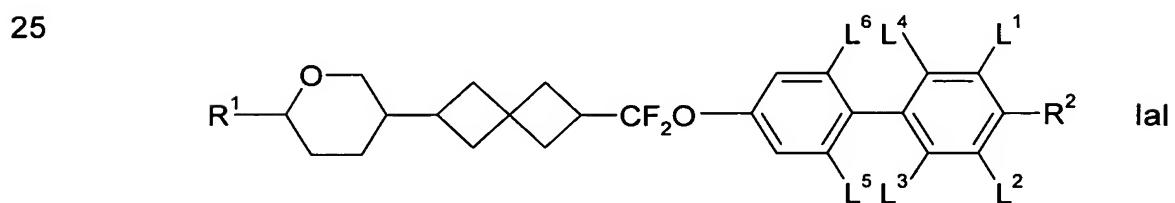
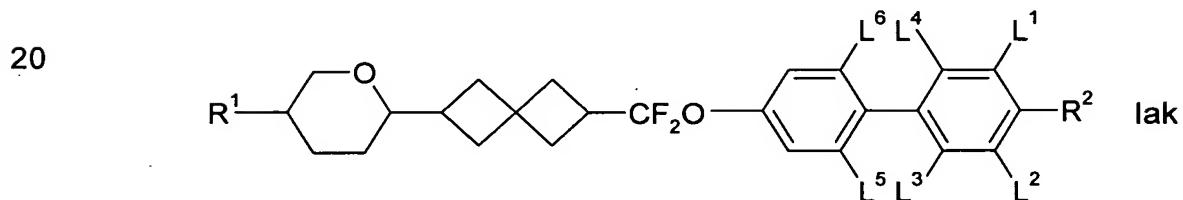
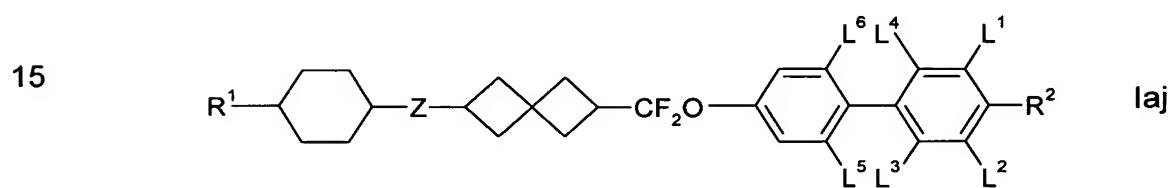
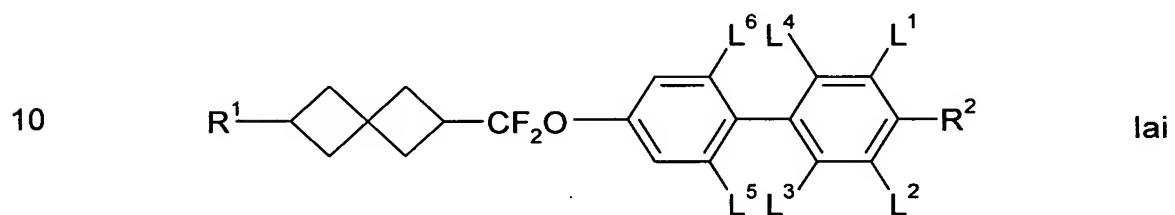
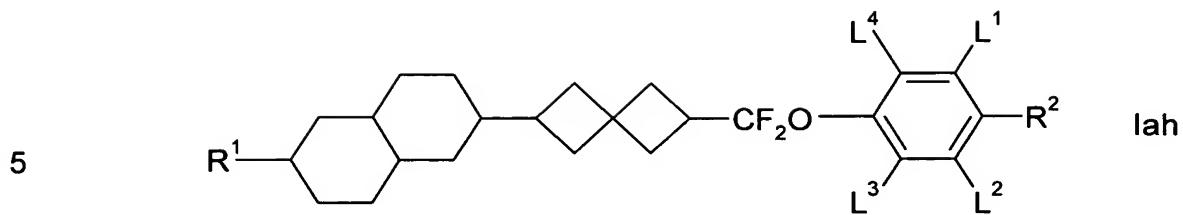
m, n are identical or different and, independently of one another, denote 0, 1 or 2, and

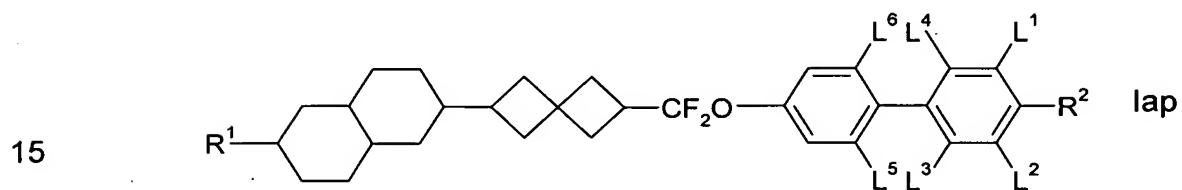
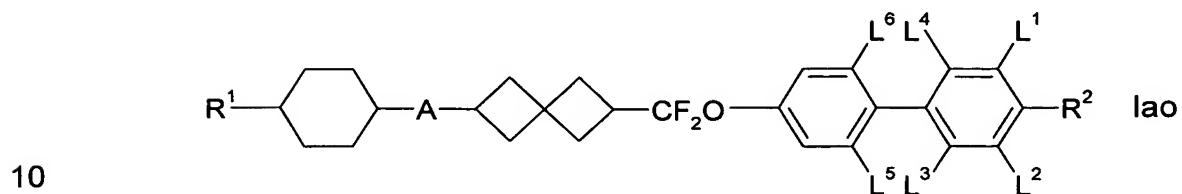
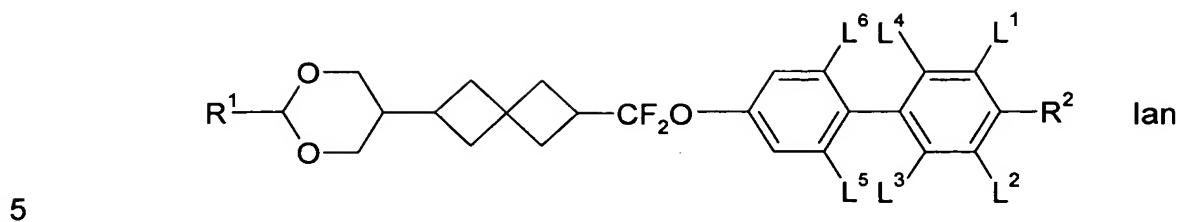
8 denotes 0 or 1.

2. Compounds according to Claim 1, characterised in that both α denote 0.
3. Compounds according to Claim 1, characterised in that both α denote 1.
4. Compounds according to Claim 2, characterised in that they have one of the following formulae:





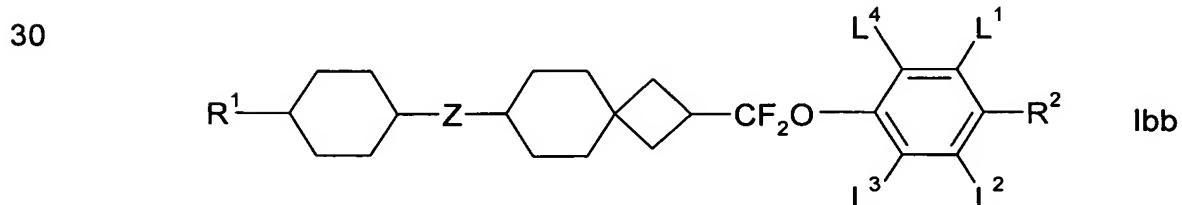
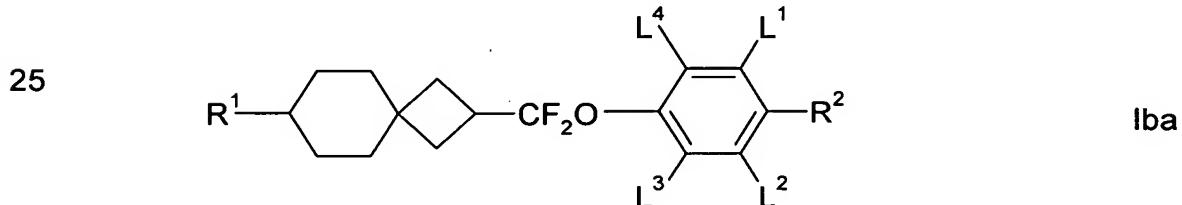




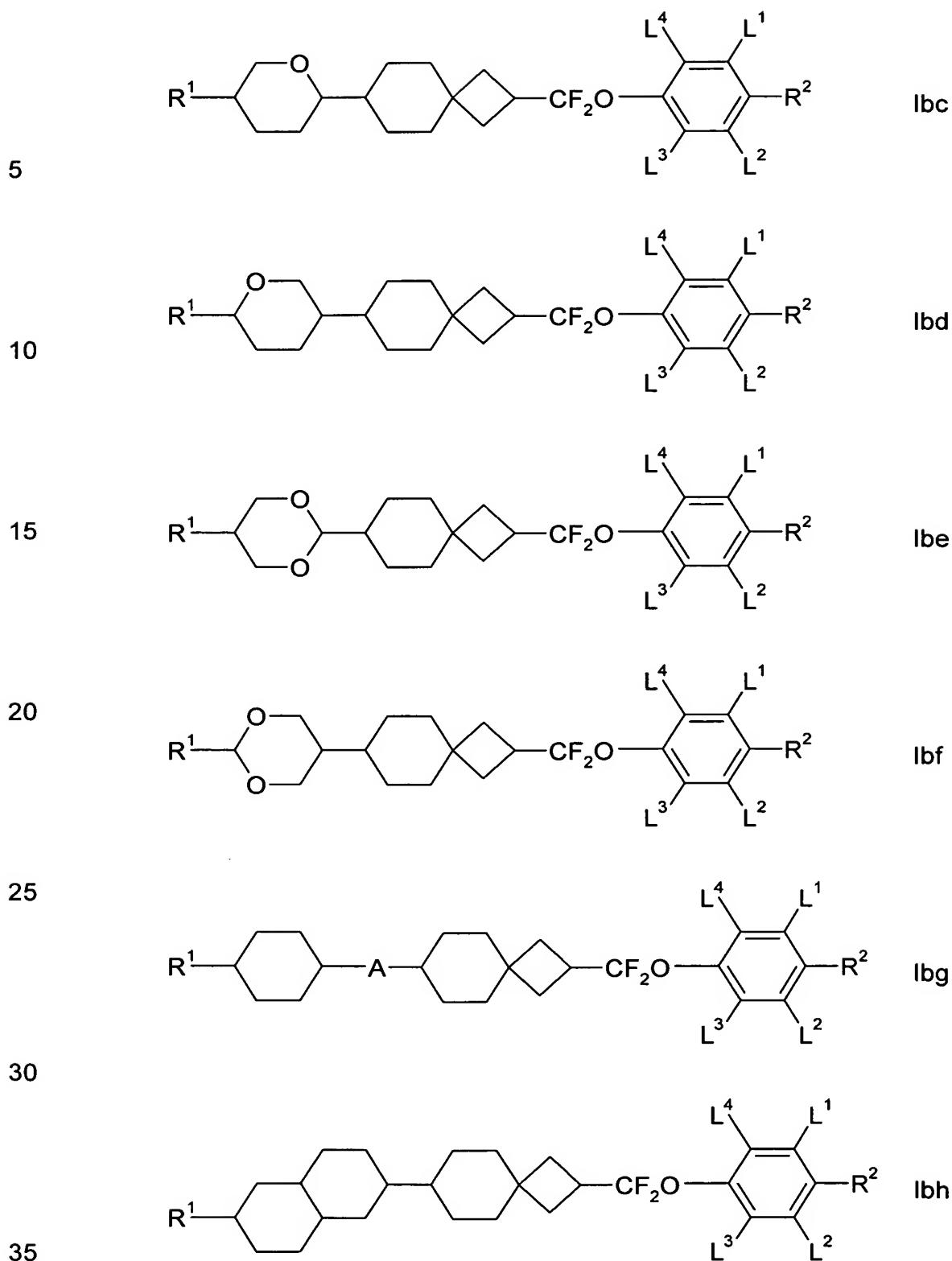
in which L¹, L², L³, L⁴, L⁵ and L⁶, are identical or different and, independently of one another, denote H or F.

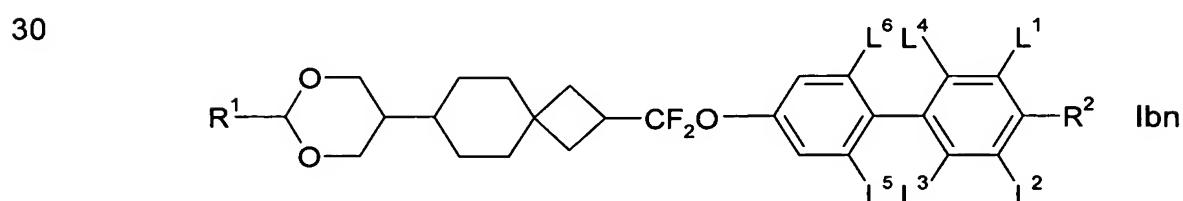
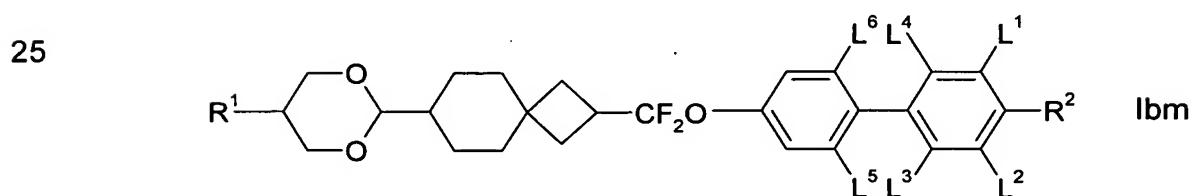
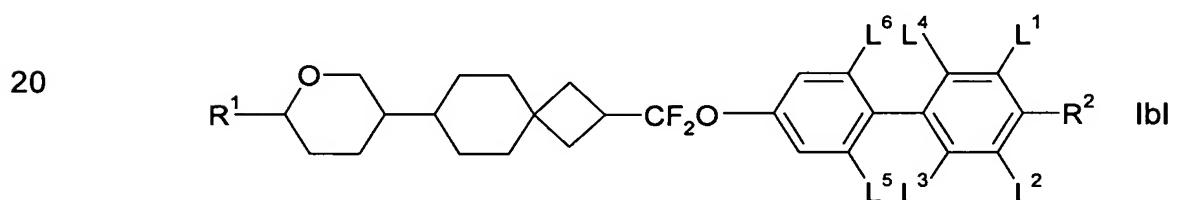
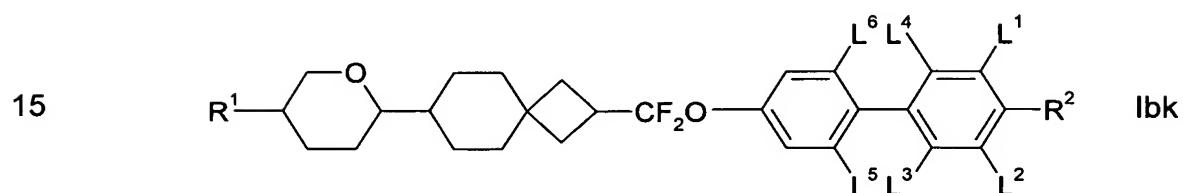
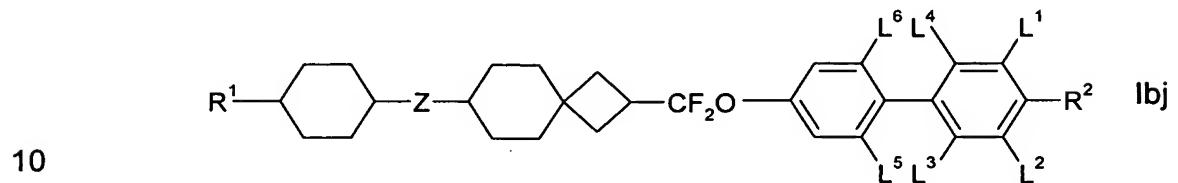
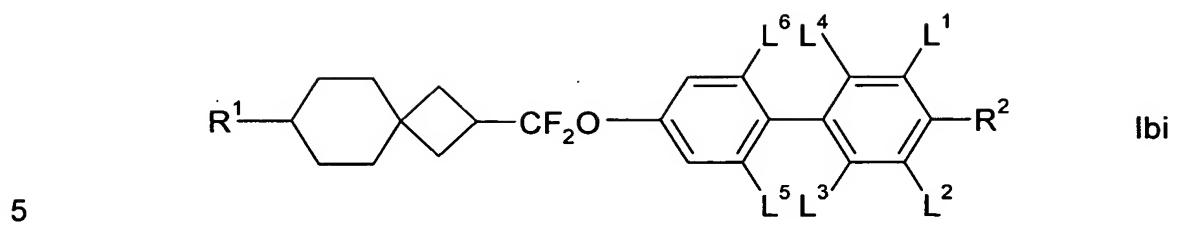
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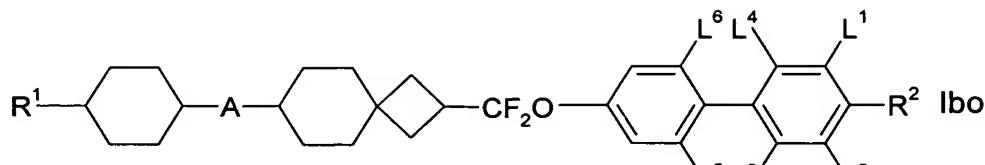
5. Compounds according to Claim 3, characterised in that they have one of the following formulae:



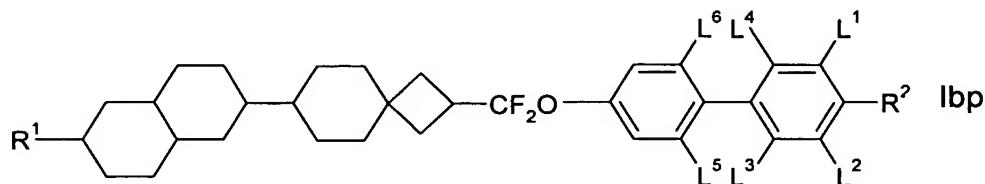
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in which L¹, L², L³, L⁴, L⁵ and L⁶, are identical or different and, independently of one another, denote H or F.

15 6. Compounds according to at least one of the preceding claims, characterised in that R¹ denotes H or a linear alkyl radical having 1 to 10 C atoms.

20 7. Compounds according to at least one of the preceding claims, characterised in that R² denotes H, a linear alkoxy radical having 1 to 10 C atoms, -F, -Cl, -CF₃, -OCF₃, -OCHF₂, -CN, -NCS or -SF₅.

25 8. Use of compounds of the formula I according to at least one of the preceding claims as component(s) of liquid-crystalline media.

9. Liquid-crystalline medium having at least two liquid-crystalline components, characterised in that it comprises at least one compound of the formula I according to at least one of Claims 1 to 7.

30 10. Liquid-crystal display element, characterised in that it contains, as dielectric, a liquid-crystalline medium according to Claim 9.

11. Reflective or transflective liquid-crystal display element, characterised in that it contains, as dielectric, a liquid-crystalline medium according to Claim 9.

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12. Electro-optical display element, characterised in that it contains, as dielectric, a liquid-crystalline medium according to Claim 9.

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